Issues of Pedagogy, Alignment, and Context in Assessing Measures of Media Literacy

Renee Hobbs
University of Rhode Island (USA)
hobbs@uri.edu
https://orcid.org/0000-0002-5001-7105

CITATION:
Hobbs, R. (2023). Issues of pedagogy, alignment, and context in assessing measures of media literacy. In N. Landry & P. Fastrez (Eds). *Media Literacy and Media Education Research Methods: A handbook* (pp. 200 – 219). Routledge.
https://www.taylorfrancis.com/chapters/edit/10.4324/9781003045366-13/issues-pedagogy-alignment-context-assessing-measures-media-literacy-renee-hobbs

Abstract
The need for reliable and valid measures of media literacy has grown among policymakers, researchers, and practitioners. Measures of media literacy can function as formative assessments to guide teachers' day-to-day curriculum choices and instructional practices, but they may also offer strategic guidance for educational leaders to identify needs and resources for program implementation and quality control. Used comparatively, measures can provide information to political leaders and other stakeholders. Advocates also value measures of media literacy that attract new stakeholders or strengthen support for media literacy programs. Three approaches to the measurement of media literacy competencies are examined to explore how the norms of knowledge construction are embedded in the epistemological and social conventions of academic disciplines. Measures of media literacy must be considered in relation to issues of pedagogy and alignment with goals and outcomes, as well as the context of the researcher and the learners' needs. Although the measurement of media literacy inevitably reduces variation, nuance, and other indicators of cultural richness, it does not need to ignore the unique contexts of experience, the diverse media texts of daily life, or the pedagogies used to advance media literacy competencies.

Digital and media literacy competencies refuse to stand still long enough to study them. As a set of competencies needed for work, life, and citizenship, media literacy (ML) has moved from a narrow conceptualization of "critical viewing skills" towards an expanded set of social practices that redefine literacy to include a wide range of genres, devices, skills, habits of mind, knowledge, and dispositions (RobbGrieco, 2018). Education has long positioned as a solution to the many challenges associated with living in a highly mediatized society (Livingstone, 2018), and as a result, scholars and policymakers alike have ramped up efforts to define and differentiate concepts for incorporating the analysis of digital media, mass media, and popular culture into the curriculum (Huguet *et al.*, 2019). A wide range of terms has emerged, including digital citizenship, digital literacy, media literacy, information literacy, news literacy, data literacy, social media literacy, metaliteracy, algorithm literacy, digital intelligence, and other terms (Council of Europe, 2019; Choi, 2016).

As the contributions in this volume amply demonstrate, there is growing interest in identifying and measuring the social practices that require the use of digital texts, tools, and technologies, processes, social interactions, and collaboration as embodied ways of being, knowing, and acting in the world. Digital and media literacy competencies are complex because some may be transversal across different uses, and others may be specific to particular platforms. For this reason, in measuring these competencies, there is a rising appreciation of the need for researchers to adopt a contextualized and situated perspective (Manca, Bocconi & Gleason, 2021).

It is evident that the multidisciplinary nature of the field has fragmented efforts to define and measure digital and media literacy competencies. Competencies cannot be observed directly but must be inferred through performance. In my own work, my decisions about measurement are rooted in my understanding of media literacy as an expanded conceptualization of literacy. For this reason, I have aimed to operationalize media literacy competencies through performance-based educational tasks that require comprehension and analysis skills, including informative and persuasive forms of print, video, and audio (Hobbs & Moore, 2013; Hobbs, 2007; Hobbs & Frost, 2003). When ML is conceptualized as a set of competencies, the focus is on people's intentional actions as part of complex, novel, and non-stereotyped situations, where they apply knowledge, skills, and attitudes as well as other resources available in particular contexts (Collard *et al*., 2019).

In this chapter, I offer some meta-methodological insights to underline the importance of assessing the quality of different types of ML competency measurements through guiding questions, which I apply to three studies in three different disciplinary domains. I have chosen examples that illustrate some of the many contexts in which measures of media literacy are used. By examining the alignment between the goals of a particular ML program, the pedagogies enacted, the measures used to assess it, the focal media texts of interest, and the contexts in which the measures are used, I aim to demonstrate why multiple measures of media literacy are productive and necessary to address the different aims of research in the field.

These guiding questions can help researchers to ensure that measures are well-aligned with programs and pedagogies, contingent on the objectives they serve and the specific contexts in which they are established. Contrary to what is sometimes assumed, it is unproductive to develop "universal" measurements of ML competencies that are remote and disconnected from the programs and contexts in which they are used.

The Many Aims of Measurement

Within every field and discipline, there is disagreement among researchers about what constitutes the essence of a particular phenomenon under examination (Morral, Schell & Tankard, 2018). Unsurprisingly, researchers have long argued about the essence of media literacy. Tyner (1991) noted how the parable of the blind men and the elephant applied to the work of media literacy educators and researchers, each of whom encountered a different body part of the gigantic beast. The changing nature of digital media technologies has reshaped some definitions of media literacy, as for example, the rise of social media has contributed to the relevance of competencies associated with participatory culture (Jenkins *et al*., 2006). Increased attention to inequalities of power has led some to conceptualize critical media literacy education as means to advance social justice and equity (Funk, Kellner & Share, 2016) and others to measure media literacy as a citizenship skill (Kahne & Bowyer, 2016). In the United States, where public trust in news has plummeted, journalists have advanced programs

in news literacy and academic researchers have developed measures that attempt to measure changes in knowledge (Maksl, Ashley & Craft, 2015), the ability to recognize misinformation (Breakstone *et al*., 2019), or perceptions of the value of media literacy itself (Vraga *et al.*, 2015).

Just as the educational practices of media literacy will vary widely due to differences in national education systems, media systems and institutions, and social values, research paradigms for measuring media literacy vary across academic disciplines, fields, and specializations. Indeed, the so-called fake news crisis has brought new stakeholders into the media literacy orbit, including data scientists, public policy experts, and political scientists. Some view media and information literacy as a form of knowledge about algorithmic personalization (Head, Fister & Macmillan, 2020) or about learning strategies for fact-checking sources (Guess *et al.*, 2020). Others operationalize the knowledge and technical skills needed to use the Internet and social media (Hargittai & Walejko, 2008) or measure public opinion about algorithmic personalization (Rainie, Anderson & Page, 2017).

Of course, approaches to the measurement of digital and media literacy competencies are also influenced by the availability of national and regional funding streams. In the United States, with substantial federal government funding for public health initiatives, media literacy has been studied primarily as an intervention to address issues in adolescent well-being, where media literacy education is thought to have special value (Vahedi, Sibalis & Sutherland, 2018). In Western Europe, researchers have specialized in the cross-national measurement of media literacy as a direct result of funding from the European Commission and other pan-European institutions, beginning in 2007, when the European Parliament adopted the Audiovisual Media Services Directive, which among other media provisions, required that media literacy levels for all member states be reported (Bulger, 2012). In Great Britain, where media literacy is defined as the ability to use, understand, and create media and communications in a variety of contexts, the competencies of adults are measured through annual surveys that report on public understanding of the economics of search engines, algorithmic personalization, and recognition of sponsored content (OFCOM, 2021). In other countries, political pressure has led to defining media literacy in terms of what is easily measurable, rather than negotiating the complexities and challenges among public stakeholders who may have differing conceptualizations of media literacy (O'Neill & Hagen, 2009).

For researchers, the most appropriate operationalization of media literacy competencies is also contingent upon the values and social norms that exist within and across geographic, disciplinary, and discourse communities. Media literacy researchers may differentiate their approach to measurement based on their stance on the empowerment-protection spectrum. Researchers with a more protectionist stance generally are motivated by the recognition of media's harmful influence on behavior and are more likely to use experimental or quasi-experimental measures that are quantitative. Those whose stance is aligned with empowerment conceptualize media literacy as an expanded form of citizenship or literacy education and do not see it primarily as an intervention to minimize harmful effects of media use. These scholars are more likely to use case study or qualitative methods to examine accounts of practice and more likely to distinguish between learning processes and student work products (Schilder, 2014).

Although evaluating and explaining the effectiveness of ML education was once described as an overwhelming challenge for current research in the field (Martens, 2010), much progress has occurred in the past 10 years. Researchers in fields including communication and media

studies, education, information and library science, and public health made substantial efforts to identify and measure media literacy competencies, with more than 2,400 doctoral dissertations produced between 2010 and 2019 making use of the keyword "media literacy." However, the range and diversity of this work can seem daunting. When European researchers tried to document the range of ML practices in formal education, they estimated that the number of distinctively different approaches in formal education may well amount to over 100 variations. They acknowledged there was "absolutely no way of even estimating what percentage of students in formal education receive media education, let alone approximate the number of students that are taught according to any one of the major working models of media education" (Hartai, 2014, p. 42).

Measures of ML competency have a variety of purposes and are developed by a range of people with different agendas, including researchers, political action groups, civil society and consumer protection groups, education reform advocates, and governmental agencies from around the world (Potter & LeChan, 2016). In examining the scholarly literature, it's clear that the academy prizes media literacy as means rather than as an end in itself. Rather than measure media literacy competencies directly, it is more common to treat media literacy education as an intervention and measure change in other behaviors, knowledge, or attitudes (Jeong, Cho & Huang, 2012; Xie, Gai & Zhou, 2019).

But the dominance of academic research in the published literature should not blind us to the range of other paradigms where the measurement of media literacy competencies has value. Policy research, pedagogical research, and program evaluation may use measures of media literacy to inform stakeholders including educational leaders, state and federal policymakers, teachers, parents, and funders. Media literacy activists may prefer measures of media literacy that they publish as policy reports, outside the peer-review process. Such efforts may help them advance their efforts in funding programs or advocate for education reform.

For these reasons, the measurement of media literacy competencies also requires a "critical examination of institutional culture and broader policy priorities" (Weninger, Hu & Choo, 2017, p. 438). Media literacy educators who work in formal education also assess student growth using assessments, of course. Assignments, tests, and grades can all be used as measures of media literacy learning. But very little scholarship examines how teachers themselves conceptualize growth in media literacy competencies. Researchers in media literacy with interests in teaching, learning, and assessment should consider looking more closely at how media literacy assessments may reflect a range of different purposes including for (1) formative assessments to guide teachers' day-to-day curriculum choices and instructional practices; (2) strategic information that helps educational leaders identify needs and resources for program implementation and quality control; (3) grading that offers feedback to learners and their families; (4) comparative assessments that provide information to political leaders and other stakeholders; (5) data that helps attract new stakeholders or strengthens support for media literacy programs. In Felini's important work to identify core features of quality media literacy programs, he notes education research is best "when theoretical knowledge and practical experience meet," pointing out the value of "direct knowledge of the real contexts in which ML projects take place" (Felini, 2014, p. 29). Community assessments may ask educators, school leaders, or parents to estimate the likelihood that students encounter media literacy learning activities (Media Education Lab, 2021). Adopting a flexible and open-minded stance towards the measurement of media literacy competencies ensures that research evidence is relevant to a wide variety of purposes and target audiences.

Measures of media literacy are created, selected, or used by researchers and educators concerning specific aims, contexts, texts, pedagogies, and disciplines. First, concepts are carefully defined in relation to the intended purpose and use of the measure. Then, measurement options are selected, including tests, self-report scales, judgments from teachers or peers, or performance tasks that ask respondents to make or do something. Measures must then be subjected to procedures that establish reliability and validity and researchers must reflect upon the intended and unintended consequences of the use of measurement instruments.

To better understand the essential contingency of media literacy measures, I want to examine how measures align with the aims of the researcher and the texts, contexts, and pedagogies under examination. To frame this inquiry, I have selected three research studies of varying quality that use task-based and self-report measures of media literacy, as shown in Table 1, to explore three guiding questions:

- How does the design of the measure align with the theoretical and pedagogical principles of media literacy that are being used by the program's creators?
- How does the measure align with the aims and values of the researcher?
- How does the measure align with the texts of interest, the target audience, and the context?

After reviewing three ML studies using the guiding questions, I offer some observations that compare across cases before offering some conclusions and recommendations.

Table 1. An Overview of Guiding Questions Measures in Three Domains

DOMAIN	MEASURE	AIMS & VALUES	TEXTS	CONTEXT	PEDAGOGY
Guess *et al.* (2020). A digital media literacy intervention increases discernment between mainstream and false news in the United States and India.					
Social Media Campaign	*Task-Based:* judge the perceived accuracy of online news headlines	Recognize markers of quality in news shared on social media	News presented in social media posts	Adults in the United States and India	Read a blog post with 10 advice tips
Primack *et al.* (2014). Comparison of media literacy and usual education to prevent tobacco use: a cluster-randomized trial.					
Smoking & Health Education	*Self-Report:* 22-item smoking media literacy	Consider the viability of media literacy as a prevention strategy	Smoking messages in advertising & entertainment	High school students in Pittsburgh PA	Perform activities, watch videos, and engage in discussion
Cheng *et al.*, (2017). The effects of BeNetWise program on youth media literacy: A mixed methods research.					
Internet Education	*Self-Report:* 31-item new media literacy competencies	Use the Internet appropriately and safely	Internet and social media use	Young teens in Hong Kong	Perform activities, engage in discussions, and complete research projects

Assessing a Digital Media Literacy Social Media Campaign

The first study under examination comes from the work of political scientists who aimed to measure the impact of a large-scale corporate media literacy campaign, which provided "tips" to adults outside of a school or university on how to spot false news. It was published in 2020 in the *Proceedings of the National Academy of Sciences of the United States of America* (PNAS), a prestigious high-impact journal that includes research from a variety of disciplines and fields. Andrew Guess and his colleagues wanted to test the efficacy of Facebook's "Tips to Spot False News," which was a social media campaign developed in collaboration with the nonprofit organization, First Draft (Facebook, 2017). This study was funded by Facebook through the Facebook Integrity Foundational Research Awards.

Researchers wondered how a digital media literacy social media campaign might have affected how adults in the United States and India make information choices involved in judging the accuracy of headlines. The Facebook "Tips" intervention was presented at the top of users' news feeds in 14 countries in April 2017 and reprinted in full-page newspaper advertisements in the United States, the United Kingdom, France, Germany, Mexico, and India. It was also distributed by WhatsApp (a Facebook subsidiary) in advertisements published in Indian and Pakistani newspapers in 2018. Researchers take pains to point out that this intervention is "almost surely the most widely disseminated digital media literacy intervention conducted to date" (Guess *et al.*, 2020, p. 15537).

The content of the U.S. intervention consists of a written post that briefly describes 10 strategies that readers can use to identify false or misleading stories that appear on their news feeds. In India, the content included adapted versions of messages shown in India by Facebook and WhatsApp. The blog post was designed to help individuals gain awareness of simple strategies to evaluate the credibility of sources and identify problematic content without expending significant time or attention. Tips include advice to be skeptical of headlines, be skeptical of the link, investigate the source, watch for unusual formatting, consider the photos, inspect the dates, check the evidence, look at other reports, and consider: Is the story a joke? Is it intentionally false? (Guess *et al.*, 2020).

Let us consider the first question: How does the design of the intervention align with the theoretical and pedagogical principles of media literacy used by the program's author? While the content of the written article does offer advice from experts, the pedagogy used in the intervention relies on simple knowledge transmission, where people learn about reading strategies from reading a blog post. Some scholars believe that such types of knowledge transmission are key to the development of media literacy competencies (Ashley, Maksl & Craft, 2013; Potter, 2004). But other researchers may doubt whether reading a blog post about critical reading strategies could, by itself, be a meaningful media literacy intervention. Because media literacy education is rooted in constructivist learning theories where learning is not synonymous with the mere transmission of information, some scholars would expect that for genuine learning to occur, learners would need opportunities to internalize these critical reading strategies through activity that involves social interaction (Coiro, 2021).

The second question asks: How does the measure align with the aims and values of the researcher? The study was designed to test whether exposure to a written list of "tips" could change how people evaluated the quality of news and information content. First, they checked users' comprehension by asking them to answer questions about the content. Researchers then used a performance measure of evaluating online content where participants saw headlines that might come from mainstream or hyperpartisan outlets, including pro-Democrat or pro-

Republican sources. Respondents were shown either 8 headlines or 16 headlines, published on Facebook within the previous 6 months. Participants were asked, "To the best of your knowledge, how accurate is the claim in the above headline? Participants could choose from these options: not at all accurate; not very accurate; somewhat accurate; or very accurate. To arrive at a composite score, researchers defined the outcome variable as the ability to distinguish between real and fake by taking the mean score of the perceived accuracy of real headlines minus the mean score of the perceived accuracy of fake headlines (Guess *et al.*, 2020).

Notice that in this measure of media literacy, accuracy is normatively scored as correct or incorrect according to judgments by expert fact-checking organizations. Such methodological approaches have been used by other researchers to produce eye-popping headlines showing that very few people can distinguish between mainstream media content and deceptive or manipulative content. For example, Breakstone *et al.* (2019) reported that hardly any high school students could critically evaluate informational content according to criteria developed by fact-checkers. But I have argued elsewhere (Hobbs, 2006) that scoring decisions about media literacy competencies should not be made as apriori decisions; they must be based on norms set within the sample. Simply put, the evaluation of individuals' media literacy competencies should be normed by comparing the performance of an individual to the rest of the sample. Because competency in media literacy is developmental across the lifespan, it is simply not productive to compare the performance of an expert to that of an 8th grader. It is likely that the decision by Guess to evaluate the media literacy performance of ordinary people based on the expertise of fact-checkers served the purpose of elevating their already outsize role after the so-called "fake news" crisis of 2016 (Moshirnia, 2020), which may have been beneficial to Facebook (for a time) in deflecting criticism of their platform.

The third question asks: How do the pedagogy and the measure align with the texts of interest, the target audience, and the context? The main finding of this study reports a statistical association between exposure to the "tips" blog post, increased skepticism of false news headlines, and decreased belief in mainstream news headlines (Guess *et al*., 2020). That's bad news for journalists, but considering the context of this study, it certainly is comforting to Facebook that "a simple, scalable media literacy intervention can decrease the perceived accuracy of false news content and help people to better distinguish it from factual mainstream news in both the United States and India" (Guess *et al*., 2020, p. 15541-15542). Indeed, this study demonstrates that even brief and inexpensive interventions such as a blog post can have value in helping adults gauge the credibility of news content they encounter on different topics or issues. This social media campaign (and the measurement instrument used) was designed to reach a very diverse group of users, by employing a "most-different case comparison" (Guess *et al.*, 2020) by including nearly 5,000 subjects that include both an online sample that has demographics that are more similar to the United States and a face-to-face sample in one of the poorest regions in India. But because the researchers were seeking to produce evidence to demonstrate the global utility of Facebook's digital media literacy social media campaign across two countries that differ widely in levels of income, education, and digital media use, it was an appropriate measure for the goals of the research.

Assessing Media Literacy in the Domain of Research on Smoking and Public Health

For the second study under examination, I selected one that was published in 2014 in the *Journal of School Health*, a publication of the American School Health Association. It addresses how a media literacy educational intervention may affect the health and well-being of school-aged youth. Brian Primack, now a dean at Oregon State University, along with

colleagues Douglas, Land, Miller and Fine (2014) worked in public urban high schools with 1,170 9th grade students in 64 classrooms, who were randomized by classroom to receive either a media literacy curriculum called "Ad It Up" or a standard educational program. The experimental curriculum, 120 minutes in total, was a theory-based anti-smoking media literacy curriculum that teaches youth to access, analyze, and evaluate mass media messages involving smoking, such as in advertisements, promotions, or product placement in the movies.

Let us consider the first question: Does the design of the intervention align with the theoretical and pedagogical principles of media literacy? In each component of the curriculum, students perform critical analysis activities, watch videos, and engage in dialogue and discussion. For the final activity, they plan and develop a video public service announcement. The "Ad It Up" curriculum maps onto the key concepts of media literacy and researchers make explicit the theoretical connection between the lessons in the curriculum and the theory of media literacy. Indeed, "Ad It Up" is an acronym where each letter stands for a big idea in media literacy theory. For example, the first lesson, entitled, "Authority" explores the question: "Who is the author of this media message, and what is their motive/purpose?" Next comes a lesson entitled, "Direct, Aim, Fire" which examines how to identify the target audience of a message. In "The Big Idea," the lesson explores the ideas that are being expressed in the message, while "Techniques" helps students recognize how messages are constructed to convey ideas. "Speak the Unspoken" is a lesson that helps students recognize omitted information, and "Plan Your Escape" invites students to reflect on their future behaviors, intentions, and actions in light of what they have learned (Phelps-Tschang, *et al.*, 2015). Researchers explicitly align the lessons of the "Ad It Up" program with learning outcomes and self-report measures of media literacy, thus enabling the effectiveness of school health programs to be scientifically defended (Kolbe, 2019).

The second question asks about how the measurement instrument aligns with the desired aims and values of the researcher. This study aims to demonstrate the value of "Ad It Up" as a media literacy program for urban high school students and to better understand why such interventions might reduce susceptibility to smoking and promote antismoking norms. Primack is a public health research expert with an interest in media literacy and adolescent health. He brings a background in education, technology, human development, and medicine by researching both positive and negative effects of media messages in order to prevent smoking, underage drinking, and other harmful adolescent health behaviors. In this study, smoking media literacy scores increased more among intervention participants compared with a control group. Such findings demonstrate the value of randomized experimental designs, which are powerful in helping to establish strong scientific evidence that a school-based media literacy curriculum is effective in teaching media literacy and activating ideas about the distorted messages about smoking that are conveyed to adolescents through advertising, TV shows, and movies.

This measure of media literacy embodies the idea that media literacy competencies are grounded in constructs that can be applied to many different specific types of media texts. The self-report instrument, the Smoking Media literacy (SML) scale, is a validated self-report scale (Primack *et al.*, 2006) that directly addresses three theoretical dimensions of media literacy, including the domain of authors and audiences (AA), messages and meanings (MM), and representation and reality (RR) (Hobbs, 2006). Half of the 22 items ask participants to indicate their level of agreement to statements that are specifically about smoking while half refer more generally to familiar forms of mass media including ads and movies. For examples, smoking-specific items include: "To make money, tobacco companies would do anything they could get away with" (AA subscale), "Cigarette ads try to link smoking to things that people want like

love, beauty, and adventure" (MM subscale), and "When you see a smoking ad, it is very important to think about what was left out of the ad" (RR subscale). General media literacy items include: "Most of the time, when people advertise products, they are more concerned about making a profit than giving correct information" (AA subscale); "Two people may see the same movie or TV show and get very different ideas about it" (MM subscale); and "Movies and TV shows don't usually show life like it really is" (RR subscale). Participants indicate their level of agreement, ranging from "strongly disagree" to "strongly agree." Raw data is then converted into a 10-point scale. By designing a measure of media literacy that includes both smoking-specific and general ML questions, researchers acknowledge that the potential educational value of ML education goes beyond a focus on health.

The third question explores the relationship between the measures as they align with the texts of interest, the target audience, and the context. Both the pedagogical strategy and the measures address the needs of African Americans and other students of color in Pittsburgh because research has shown that minority groups bear the greatest burden of morbidity and mortality due to smoking (Primack *et al.*, 2014). The use of self-report instruments is justified concerning the study's aim to address the needs of largely minority students in urban public schools. Self-report measures make it easier for researchers to study a large sample of participants, ensuring that under-represented groups are included in efforts to create new knowledge.

Assessing Media Literacy in the Domain of Technology and Education

For the final study under examination, I selected a community-based media literacy program evaluation developed by a team of collaborators in Hong Kong. The study under examination was presented by Kevin P.C. Cheng, a computer scientist, and his colleagues at the University of Hong Kong (Cheng *et al.*, 2017). It was presented at the 80th Annual Meeting of the Association for Information Science & Technology in Washington, DC, and published in the conference proceedings. This multidisciplinary professional association bridges the gap between information science practice and research, with members including professionals in data science, linguistics, management, librarianship, engineering, information architecture, law, medicine, chemistry, and education.

Let us consider the first question: Does the design of the intervention align with the theoretical and pedagogical principles of media literacy? Cheng and colleagues evaluated the BeNetWise program, which was a large-scale program coordinated by the Hong Kong Federation of Youth Groups and funded by the government of Hong Kong in 2009. The program was a $63 million effort that included an education campaign to help young people and their parents use the Internet appropriately and safely. The program involved many different efforts by more than 500 people working in 13 NGOs to enhance awareness of safe Internet behaviors.

Program evaluations are an important tool of the nonprofit world because they help organizations prove that a program is being implemented as designed and they also may establish whether a program is generating desired effects. Because they are often written to address the funder or another specific audience, they may be limited by the level of transparency and detail they offer. Program evaluation is widely used by political and administrative roles in state and federal governments, and this work is often contracted with university researchers, research firms, and consultants. Program evaluations largely are designed to support policymaking, program management, and client advocacy (Shaw *et al.*, 2006). But they do not generally use an experimental design or other features of social science research that establish claims about the generalizability of knowledge.

A unique feature of the BeNetWise program was home visits, where a social worker gathered data about media and technology usage, reviewed appropriate use of the Internet via a specially prepared parents' handbook, and provided technical assistance on computer setup. More than 6,000 sets of Professional Educational Kits were printed and distributed to educators in a curriculum that included handbooks, activity worksheets, video clips, and PowerPoint slides. The program content examined the relationship between the internet and teenage growth, internet culture, and the basics of internet security. Topics include the phenomenon of cyber-addiction, cyber-bullying, internet friendship, internet crime, and copyright infringement (HKFYG, 2011).

In Cheng *et al.*'s (2017) study, the BeNetwise program is described as "based on the principles of the NAMLE model of media literacy curriculum." While only a few details of the program, curriculum content, pedagogy, or implementation of the BeNetWise program are described in the publication, the goals of the program are described on the organization's website (HKFYG, 2011). The program is designed to (1) enhance the parent-child relationship in the new media age; (2) promote teenagers as responsible netizens and lifelong learners by using new media ethically and effectively; (3) cultivate young people's media literacy by enhancing their knowledge of new media, critical thinking and positive values towards massive media information; (4) enhance parents' digital parenting skills and parent-child relationships; and (5) support teachers to implement media literacy education in schools. But the design of the intervention is not in alignment with Western ideas about the theoretical and pedagogical principles of media literacy; this program offers more of a model for family wellness in a digital age. Notice that there is no emphasis on critical analysis of media texts here; the focus instead is on the responsible usage of digital media by teens who are guided wisely by parents and teachers.

The second question asks about how the measure aligns with the desired aims of the researcher. In this case, the program evaluators wanted an expedient way to demonstrate the potential value of creating media, not just consuming it. The researchers used the New Media Literacy Scale (NMLS), a measurement instrument originally developed for use with college students (Koc & Barut, 2016). This 31-item Likert-scale self-report used measures including functional and critical consumption and functional and critical prosumption. Critical consumption is defined as the ability to deconstruct media messages through semiotic textual analysis and critical prosumption is the ability to create a blog or webpage, to post original artwork online, or to remix online content into their creations is a new media literacy competence and to engage in the pooling of knowledge with awareness of the socio-cultural values, ideology, and power relationships.

The program evaluation report does not make clear how the intervention under examination mapped onto these measures. No rationale is offered for why this particular ML measure was used with younger students aged 12- and 13-year-old students who were exposed to the program. In the study, researchers report that a sample of students completed both a pre-test and post-test of the NMLS, but we do not learn how much time elapsed between Time 1 and Time 2. Results of the paired-samples t-test showed that, except for functional prosumption, students increased scores for functional consumption, critical consumption, and critical prosumption after undergoing the BeNetWise program.

The research design choices made by the researchers reveal their interest in combining traditional measures of program evaluation with empirical data showing that the program had led to measurable, scientific results. After taking the post-test, students were also invited to

participate in a post-curriculum focus group interview, sharing their learning experiences within the program. Interviews with students were recorded, transcribed, and coded using themes that aligned with the theoretical concepts. Qualitative data revealed that students talked most about the practice of analyzing media content before posting and sharing. But the empirical measures of ML competencies were not triangulated with data from the interviews.

The third question explores the relationship between the measures as they align with the texts of interest, the target audience, and the context. The measures used in this study were written in Chinese for an Asian audience and some phrases are translated in ways that may be unfamiliar to Western readers. For example, the item "I notice media contents containing mobbing and violence" may be confusing for those who are unfamiliar with the term "mobbing," which refers to the bullying of an individual by a group. Other items might be confusing to younger children, such as: "I am able to use software necessary for developing media content" (functional prosumption), and "It is important for me to create media content that complies with legal and ethical rules" (critical prosumption).

Missing contextual information increases the difficulty of evaluating the quality and relevance of ML measures. Readers are also given little information about the role of the research team in the BeNetWise program. It's not clear whether or how any of the team members who are listed as authors in the report participated in the staffing of the BeNetWise program. Did any of the authors directly work with students to implement the BeNetWise curriculum? It's possible that the Cheng research team participated only in assessing the program's effectiveness as implemented by other community organizations, but the absence of a researcher positionality statement makes it difficult to understand the researcher's stance. Because program evaluation is often a process that unfolds in real-time, with more time pressures than in academic research, measures may or may not be in good alignment with theory and pedagogy. Program evaluators must often select the "best available" measures because resources are not always available to support the time-consuming process of instrument development.

Cross-Case Comparison

Measuring media literacy is challenging, but so is measuring reading comprehension, second language learning, and driving an automobile. Tasks like these all involve complex performances that include the activation of knowledge and cognition, attitudes and emotions, and behaviors that are performed within situated forms of lived experience. While it is not realistic to propose a simple heuristic for a comprehensive assessment of the measurement of ML competencies in every possible context, it is possible to evaluate the relative quality and value of ML competency measurements.

The use of guiding questions is a way to identify meta-methodological insights that may be particularly useful for evaluating research in media literacy that is conducted by researchers from outside one's own primary discipline or field. By looking carefully at how the design of a particular ML measure aligns with the theoretical and pedagogical principles of media literacy, it is possible to evaluate how ML measures reflect different theoretical conceptualizations of media literacy and the different underlying values that are present in the field. For example, the Guess study, like many forms of news literacy research, adheres to a narrow definition of ML competency based on the ability to identify differences between mainstream news and so-called "fake news." But other news literacy research takes a more nuanced perspective, noting that the ability to "spot hoaxes, check facts, and understand and appreciate the work of traditional journalists" are behaviors that sometimes "conflate normative

beliefs and attitudes about journalism with the knowledge needed to judge the quality or reliability of news content" (Vraga *et al.*, 2021, p. 3).

In the Primack study, researchers tested the impact of a curriculum that has been specially designed to align with the measure of ML competencies used for research purposes. Here, the close alignment between intervention and measure is a great asset to the research, but it also can be said to "prove the obvious." The study demonstrated that learners learn what they have been taught. The more complicated problem for Primack and other public health researchers is not about whether participation in an ML intervention advances ML competencies (he clearly demonstrated that it does), but whether ML competencies shift attitudes about the desirability and appeal of smoking. Other research has found that the SML scale is associated with lower susceptibility to smoking, and one study with middle-school students demonstrated an increase of 1 point on the SML scale is associated with a 34% decrease in susceptibility to smoking (Bier, Zwarun & Sherblom, 2016).

In the Cheng study, the complex and multi-faceted nature of the ML intervention itself, which was modeled on family wellness principles was resolved by using an existing measure that was originally designed for college students. Researchers relied on an existing measure to produce program evaluation data that showed change over time in children's ML competencies. Even though the alignment between the ML measure and the intervention is not clearly specified, it is highly plausible that a program designed to promote teenagers as responsible netizens and lifelong learners by using new media ethically and effectively could also influence attitudes and beliefs. In this study, program evaluation was conducted by academic researchers, but often, program assessment is based in schools and led by educators themselves. In some cases, the measures of ML competencies used may not meet the methodological expectations established for academic research. For these reasons, program evaluations are often hard to publish because, by definition, it is not the type of research that leads to generalized new knowledge. However, program evaluations are critically important in supporting the work of practitioners in the field. Professional journals that help advance media literacy education strive to balance the voices of both researchers and teachers in addressing this challenge (Cappello, Felini & Hobbs, 2011).

Conclusion

Guiding questions may be effective in both creating new measures and evaluating existing measures. In the process of designing new research, answering these questions helps ensure that measures are aligned with goals, pedagogies, and learning contexts. There's no need to create artificial hierarchies that position some measures as inherently "better" than others. Despite repeated calls from public policy experts, the quest for a single robust measure of media literacy is a pipe dream. Measures of media literacy competencies will inevitably look different in Pittsburgh than they do in Peru, the Philippines, or Poland. As we saw, each of the researchers profiled in this paper faced a complex juggling task in selecting and using ML measures to accomplish their goals. By using guiding questions to examine the alignment between measures, aims, texts, contexts, and pedagogies, it is possible to identify how researchers' values shape their approach to the use of ML measures. As researchers evaluate, adapt, and develop new media literacy research instruments, it is important to acknowledge their situatedness, positionality, and biases.

Self-reflexivity is an essential part of the research process that could be useful in addressing some unstated tensions that exist operationalizing the concept of media literacy itself. For example, Schilder (2014) found that when interviewees were asked to identify primary

outcomes of media literacy, they generally relied on the canonical definition that focuses on analysis competencies. But when asked about their ideal approaches to assessing media literacy, experts wanted more focus on assessment through practical work, including media production. When ML measures are truly aligned with the learning goals of educators, a variety of assessment measures and methods will be needed, including individualized assessment of media literacy competencies through a diverse range of work products that target students' particular needs, learning styles, interests, and abilities.

Although the development of a single media literacy measure is not likely to gain traction, efforts to triangulate different ML measures may have the potential to increase awareness of the foundational values and assumptions that underpin the disciplinary construction of knowledge. As media literacy advocates consider the contributions of both academics and education professionals in building knowledge about "what works," it may be wise to take advantage of the power of triangulation to make the most of multiple measures of media literacy. But because each measure may serve different purposes and be informed by different theoretical conceptualization of media literacy, triangulation of measures may be less informative than insights gleaned from measures of media literacy being examined across different contexts. Triangulation across contexts could increase confidence in how we consider and use ML assessment data to advance new knowledge.

Because academics actively participate in knowledge construction as members of global professional communities, our theoretical frameworks and methodological decisions are influenced by, and deeply embedded in, the epistemological and social conventions of our disciplines. In the education and public policy sectors, quantitative measures are preferred because they are thought to be more transparent and accountable than qualitative measures. However, although the measurement and data reduction process inevitably reduce variation, difference, and other indicators of cultural richness, it does not need to ignore the unique contexts of experience, the diverse media texts of daily life, or the pedagogies used to advance media literacy competencies.

The use of guiding questions to evaluate ML measures and their alignment with aims, contexts, texts, and pedagogies opens up the possibilities of new lines of research inquiry. Media literacy competency measures that are closely aligned with pedagogies of media literacy have a particularly important role to play in the years ahead. In Schilder and Redmond's (2019) research, they studied the changes in critical questioning habits for pre-service teacher education students enrolled in a media literacy course. Students were asked to generate questions in response to a media text and findings revealed that after completing the course, students' questions were more complex and involved more attention to key concepts related to production techniques and representations. For future teachers, the use of an ML competency measure that centers on the practice of "asking critical questions" aligns with and extends the very pedagogies that activate critical thinking skills for learners of all ages.

Research measures cannot be evaluated in a vacuum: they must be examined in relation to the foundational aims of those who use them. As Felini (2014) notes, the paradigm of intersubjectivity and the engagement of multiple stakeholders with distinctive and different points of view is a feature, not a bug, of the global media literacy community. Although media literacy competencies may vary widely in how they are conceptualized and measured, the multiple approaches used by the research and professional community of media literacy advocates may be particularly valuable given the fast-moving and rapidly changing nature of our mediatized cultural environment.

Further Readings

Felini, D. (2014). Quality media literacy education: A tool for teachers and teacher educators of Italian elementary schools. *Journal of Media Literacy Education*, *6*(1), 28-43.

> This study offers a systematic framework of 35 indicators of quality, grouped according to five general criteria: teaching methods; the competence and involvement of the stakeholders; the structure and coherence of the program components; teachers' awareness of underlying MLE theories; and the originality of the project. This framework for measuring quality programs in school settings can be used to support teacher training as well as the systematic measurement and assessment of MLE work in schools.

Schilder, E. & Redmond, T. (2019). Measuring media literacy inquiry in higher education: Innovation in assessment. *Journal of Media Literacy Education*, *11*(2), 95-121.

> To examine how learners develop critical questioning habits with regards to media, researchers studied the changes in critical questioning habits for students enrolled in media literacy courses. After instruction, students asked more questions related to production techniques and representations.

References

Ashley, S., Maksl, A. & Craft, S. (2013). Developing a News Media Literacy Scale. *Journalism & Mass Communication Educator*, *68*(1), 7-21. Doi: https://doi.org/10.1177/1077695812469802

Bier, M. C., Zwarun, L. & Sherblom, S. A. (2016). Evidence of the Value of the Smoking Media Literacy Framework for Middle School Students. *Journal of School Health*, *86*(10), 717-725. Doi: https://doi.org/10.1111/josh.12425

Breakstone, J., Smith, M., Wineburg, S., Rapaport, A., Carle, J., Garland, M. & Saavedra, A. (2019). *Students' Civic Online Reasoning: A National Portrait*. Palo Alto, CA: Stanford History Education Group & Gibson Consulting. URL: https://stacks.stanford.edu/file/gf151tb4868/Civic%20Online%20Reasoning%20National%20Portrait.pdf

Bulger, M. E. (2012). Measuring Media Literacy in a National Context: Challenges of Definition, Method, and Implementation. *Medijske studije*, *3*(6), 83-104. URL: https://hrcak.srce.hr/ojs/index.php/medijske-studije/article/view/6069

Cappello, G., Felini, D. & Hobbs, R. (2011). Reflections on Global Developments in Media Literacy Education: Bridging Theory and Practice. *Journal of Media Literacy Education*, *3*(2), 66-73. Doi: https://doi.org/10.23860/jmle-3-2-1

Cheng, K. P., Leung, C. K., Mok, J. C., Datu, J. A. D., Valdez, J. P. M., Huang, H., ... & Chu, S. K. W. (2017). The Effects of BeNetWise Program on Youth Media Literacy: A Mixed Methods Research. *Proceedings of the Association for Information Science and Technology*, *54*(1), 487-490. Doi: https://doi.org/10.1002/pra2.2017.14505401053

Choi, M. (2016). A Concept Analysis of Digital Citizenship for Democratic Citizenship Education in the Internet Age. *Theory & Research in Social Education*, *44*(4), 565-607. Doi: https://doi.org/10.1080/00933104.2016.1210549

Coiro, J. (2021). Toward a Multifaceted Heuristic of Digital Reading to Inform Assessment, Research, Practice, and Policy. *Reading Research Quarterly*, *56*(1), 9-31. Doi: https://doi.org/10.1002/rrq.302

Collard, A.-S., Fastrez, P., Jacques, J., Ligurgo, V. & Philippette, T. (2019). A Definition of Digital Media Literacy Competences Required by Workers to Collaborate in Distance Work Environments. In *Digital Media Literacy in Teamwork and Distance Work: Competences, Discourse and Organizational Design* (pp. 13-68). University Press of Namur. Retrieved from http://www.crid.be/pdf/public/8498.pdf

Council of Europe (2019). Digital Citizenship. Retrieved from https://www.coe.int/en/web/digital-citizenship-education/home?desktop=true

Facebook (2017). Tips to Spot False News. Retrieved from https://www.facebook.com/help/188118808357379

Felini, D. (2014). Quality Media Literacy Education: A Tool for Teachers and Teacher Educators of Italian Elementary Schools. *Journal of Media Literacy Education*, *6*(1), 28-43. URL: https://files.eric.ed.gov/fulltext/EJ1043443.pdf

Funk, S., Kellner, D. & Share, J. (2016). Critical Media Literacy as Transformative Pedagogy. In *Handbook of Research on Media Literacy in the Digital Age* (pp. 1-30). Hershey PA: IGI Global.

Guess, A. M., Lerner, M., Lyons, B., Montgomery, J. M., Nyhan, B., Reifler, J. & Sircar, N. (2020). A Digital Media Literacy Intervention Increases Discernment between Mainstream and False News in the United States and India. *Proceedings of the National Academy of Sciences*, *117*(27), 15536-15545. Doi: https://doi.org/10.1073/pnas.192049811

Hargittai, E. & Walejko, G. (2008). The Participation Divide: Content Creation and Sharing in the Digital Age. *Information, Community and Society*, *11*(2), 239-256. Doi: https://doi.org/10.1080/13691180801946150

Hartai, L. (2014). Report on Formal Media Education in Europe. OFI (Hungarian Institute for Education Research and Development, Hungary). Emedus: European Media Literacy Education Study. Available at: https://eavi.eu/wp-content/uploads/2017/02/Media-Education-in-European-Schools-2.pdf

Head, A. J., Fister, B. & MacMillan, M. (2020). Information Literacy in the Age of Algorithms: Student Experiences with News and Information, and the Need for Change. *Project Information Literacy*. https://projectinfolit.org/pubs/algorithm-study/pil_algorithm-study_2020-01-15.pdf

HKFYG (2011). Report of the "Be Netwise" Internet Education Campaign. Hong Kong Federation of Youth Groups. Retrieved from http://benetwise.hk/download/Be-Netwise_Report.pdf

Hobbs, R. (2006). Multiple Visions of Multimedia Literacy: Emerging Areas of Synthesis. In M. McKenna, L. Labbo, R. Kieffer & D. Reinking (Eds.), *Handbook of Literacy and Technology*, Volume II. International Reading Association (pp. 15-28). Mahwah NJ: Lawrence Erlbaum Associates.

Hobbs, R. (2007). *Reading the Media in High School: Media Literacy in High School English.* New York: Teachers College Press.

Hobbs, R. & Frost, R. (2003). Measuring the Acquisition of Media-literacy Skills. *Reading Research Quarterly*, *38*(3), 330-355. Doi: https://doi.org/10.1598/RRQ.38.3.2

Hobbs, R. & Moore, D. C. (2013). *Discovering Media Literacy: Teaching Digital Media and Popular Culture in Elementary School*. Thousant Oaks: Corwin Press.

Huguet, A., Kavanagh, J., Baker, G. & Blumenthal, M. (2019). *Exploring Media Literacy Education as a Tool for Mitigating Truth Decay*. Santa Monica CA: RAND Corporation. https://www.rand.org/pubs/research_reports/RR3050.html

Jenkins, H., Purushotma, M., Weigel, K., Clinton, K. & Robison, A. (2006). Confronting the Challenges of a Participatory Culture: Media Education for the 21st Century. Cambridge MA/London: MIT Press.

Jeong, S. H., Cho, H. & Huang, Y. (2012). Media Literacy Interventions: A Meta-analytic Review. *Journal of Communication*, *62*, 454-472. Doi: https://doi.org/10.1111/j.1460-2466.2012.01643.x

Kahne, J. & Bowyer, B. (2016). Educating for Democracy in a Partisan Age: Confronting the Challenges of Motivated Reasoning and Misinformation. *American Educational Research Journal*, 1-32 Doi: https://doi.org/10.3102/0002831216679817

Koc, M. & Barut, E. (2016). Development and Validation of New Media Literacy Scale (NMLS) for University Students. *Computers in Human Behavior*, *63*, 834-843. Doi: https://doi.org/10.1016/j.chb.2016.06.035

Kolbe, L. (2019). School Health as a Strategy to Improve both Public Health and Education. *Annual Review of Public Health*, *40*(1), 443-463. Doi: https://doi.org/10.1146/annurev-publhealth-040218-043727

Livingstone, S. (2018, May 18) Media Literacy – everyone's favourite solution to the problems of regulation. Retrieved from https://blogs.lse.ac.uk/medialse/2018/05/08/media-literacy-everyones-favourite-solution-to-the-problems-of-regulation/

Maksl, A., Ashley, S., & Craft, S. (2015). Measuring news media literacy. *Journal of Media Literacy Education*, *6*(3), 29-45.

Manca, S., Bocconi, S., & Gleason, B. (2021). "Think globally, act locally": A glocal approach to the development of social media literacy. *Computers & Education*, *160*, 104025.

Martens H. (2010). Evaluating Media Literacy Education: Concepts, Theories, and Future Directions. *Journal of Media Literacy Education*, *2*, 1-22. Doi: https://doi.org/10.23860/jmle-2-1-1

Media Education Lab (2021, October). Media Literacy in Rhode Island: A Statewide Survey. Kingston: University of Rhode Island. URL: https://mediaeducationlab.com/pub/media-literacy-rhode-island

Morral, A. R., Schell, T. & Tankard, M. (2018). The Magnitude and Sources of Disagreement among Gun Policy Experts. RAND Corporation. URL: https://www.rand.org/pubs/research_reports/RR2088z1.html

Moshirnia, A. (2020). Who Will Check the Checkers? False Factcheckers and Memetic Misinformation. *Utah Law Review*, *4*, 1029-1073. Doi: https://doi.org/10.26054/0DDVTA6FPV

NAMLE Core Principles. ND. Core Principles of Media Literacy Education in the United States. Retrieved from https://namle.net/wp-content/uploads/2020/09/Namle-Core-Principles-of-MLE-in-the-United-States.pdf

OFCOM (2021, April). Adults Media Use and Attitudes Report. https://bit.ly/3yzopC5

O'Neill, B. & Hagen, I. (2009) Media Literacy. In S. Livingstone & L. Haddon (Eds.), *Kids Online: Opportunities and Risks for Children* (pp. 229-239). Bristol: Policy Press.

Phelps-Tschang, J. S., Miller, E., Rice, K. R. & Primack, B. A. (2015). Web-based Media Literacy to Prevent Tobacco Use among High School Students. *Journal of Media Literacy Education*, *7*(3), 29-40. Doi: https://doi.org/10.23860/jmle-7-3-3

Potter. J (2004). *Theory of Media Literacy.* New York: Sage Publications Inc.

Potter, J. W. & LeChan, T. (2016). Conceptual Challenges in Designing Measures for Media Literacy Studies. *International Journal of Media and Information Literacy*, *1*(1), 27-42.

Primack, B. A., Douglas, E. L., Land, S. R., Miller, E. & Fine, M. J. (2014). Comparison of Media Literacy and Usual Education to Prevent Tobacco Use: A Cluster-randomized Trial. *The Journal of School Health*, *84*(2), 106-115. Doi: https://doi.org/10.1111/josh.12130

Primack B. A., Gold, M. A., Switzer, G. E., Hobbs, R., Land, S. R. & Fine, M. J. (2006). Development and Validation of a Smoking Media Literacy Scale. *Archives of Pediatrics & Adolescent Medicine*, *160*(4), 369-374. Doi: https://doi.org/10.1001/archpedi.160.4.369

Rainie, L., Anderson, J. & Page, D. (2017). Code-dependent: Pros and Cons of the Algorithm Age. *Pew Research Center*.

RobbGrieco, M. (2018). *Making Media Literacy in America.* Lexington Books.

Schilder, E. A. M. (2014). *Perceptions of Media Literacy Assessment: A Mixed-Methods Study.* Doctoral dissertation, Virginia Polytechnic Institute and State University, Department of Curriculum and Instruction, Blacksburg, VA. URL: https://vtechworks.lib.vt.edu/bitstream/handle/10919/47727/Schilder_EA_D_2014.pdf

Schilder, E. & Redmond, T. (2019). Measuring Media Literacy Inquiry in Higher Education: Innovation in Assessment. *Journal of Media Literacy Education*, *11*(2), 95-121. Doi: https://doi.org/10.23860/JMLE-2019-11-2-6

Shaw, I., Shaw, I. G. R., Greene, J. C. & Mark, M. M. (Eds.). (2006). *The Sage Handbook of Evaluation*. London: Sage Publications Ltd.

Tyner, K. (1991). The Media Education Elephant. *Strategies Quarterly*, 5-10.

Vahedi, Z., Sibalis, A. & Sutherland, J. E. (2018). Are Media Literacy Interventions Effective at Changing Attitudes and Intentions towards Risky Health Behaviors in Adolescents? A Meta-analytic Review. *Journal of Adolescence*, *67*, 140-152. Doi: https://doi.org/10.1016/j.adolescence.2018.06.007

Vraga, E. K., Tully, M., Kotcher, J. E., Smithson, A. B. & Broeckelman-Post, M. (2015). A Multi-dimensional Approach to Measuring News Media Literacy. *Journal of Media Literacy Education*, *7*(3), 41-53. Doi: https://doi.org/10.23860/jmle-7-3-4

Vraga, E. K., Tully, M., Maksl, A., Craft, S. & Ashley, S. (2021). Theorizing News Literacy Behaviors. *Communication Theory*, *31*(1), 1-21. Doi: https://doi.org/10.1093/ct/qtaa005

Weninger, C., Hu, G. & Choo, S. S. (2017). The Influence of Individual and Contextual Variables on Teachers' Understanding and Classroom Practice of Media Literacy. *Teaching and Teacher Education*, *67*, 429-439. Doi: https://doi.org/10.1016/j.tate.2017.07.013

Xie, X., Gai, X. & Zhou, Y. (2019). A Meta-analysis of Media Literacy Interventions for Deviant Behaviors. *Computers & Education*, *139*, 146-156. Doi: https://doi.org/10.1016/j.compedu.2019.05.008